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EXAMINER

OSMAN, RAMY M

ART UNIT PAPER NUMBER

2157

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Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Status of Claims

1. This communication is responsive to RCE amendment filed January 9, 2006. Claims 1,3,5,7,9,11,13 and 15 were amended. Claims 1-16 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection, as follows below.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1,3,5,7,9,11,13 and 15 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. On lines 4-5 it is recited "... holds the same data is duplicated in said first...". This is vague and unclear language that renders the claims indefinite.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1,2,8,9 rejected under 35 U.S.C. 103(a) as being unpatentable over Ronstrom (US Patent No 6,438,707) in view of Mutalik et al (US Patent No 6,611,923).**

7. In reference to claims 1 and 9, Ronstrom teaches a data duplicating method and system respectively that connects a first information processing system comprised of a first host computer and a first storage device and at least one second information processing system comprised of a second host computer and a second storage device through a data transfer path and holds the same data in duplicate in said first and second information processing systems by copying first update data generated in said first information processing system to said second information processing system (column 2 lines 25-40 & 50-65, column 4 lines 4-11 & 35-41, column 10 lines 30-47, column 11 lines 22-50, Ronstrom teaches a primary and a backup system that are synchronized with update data),

the second information processing system generating second update data after taking over information and data processing performed by said first information processing system when said first information processing system stops operating (column 2 lines 25-40 & 50-65, column 4 lines 4-11 & 35-41, column 10 lines 30-47, column 11 lines 22-50, Ronstrom teaches the

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backup system assuming functions of the primary system when a fault is detected in the primary system).

Ronstrom fails to explicitly teach wherein said second information processing system generates difference control information for identifying second update data generated in said second information processing system after taking over information and data processing performed by said first information processing system when said first information processing system stops operating, and after resumption of operation said first information processing system, said second update data is selectively copied to said first information processing system on the basis of said difference control information. However, Mutalik teaches a backup server backing up a main mass storage system, and then restoring the mass storage system if a malfunction occurs on the mass storage system, for the purpose of restoring a malfunctioned storage system (column 3 lines 15-35, column 4 lines 5-10 & 30-60, column 5 lines 4-20).

It would have been obvious for one of ordinary skill in the art to modify Ronstrom wherein said second information processing system generates difference control information for identifying second update data generated in said second information processing system after taking over information and data processing performed by said first information processing system when said first information processing system stops operating, and after resumption of operation said first information processing system, said second update data is selectively copied to said first information processing system on the basis of said difference control information as per the teachings of Mutalik for the purpose of restoring a malfunctioned primary system.

8. In reference to claims 2,8, Ronstrom teaches a data duplicating method and system according to claims 1 and 9 respectively, wherein said difference control information is a bit map

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that indicates the presence or absence of completion of data duplication of said first and second update data at a plurality of individual units of data storage in each of said first and second storage devices (column 3 lines 15-35, column 4 lines 5-10 & 30-60, column 5 lines 4-20).

9. Claims 3-7,10-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Ronstrom (US Patent No 6,438,707) in view of Mutalik et al (US Patent No 6,611,923) in further view of Yanai et al (US Patent No 5,544,347).

10. In reference to claims 3,5,11 and 13, Ronstrom teaches a data duplicating method and system respectively that connects a first information processing system comprised of a first host computer and a first storage device and at least one second information processing system comprised of a second host computer and a second storage device through a data transfer path and holds the same data in duplicate in said first and second information processing systems by copying first update data generated in said first information processing system to said second information processing system (column 2 lines 25-40 & 50-65, column 4 lines 4-11 & 35-41, column 10 lines 30-47, column 11 lines 22-50, Ronstrom teaches a primary and a backup system that are synchronized with update data),

the second information processing system generating second update data after taking over information and data processing performed by said first information processing system when said first information processing system stops operating (column 2 lines 25-40 & 50-65, column 4 lines 4-11 & 35-41, column 10 lines 30-47, column 11 lines 22-50, Ronstrom teaches the backup system assuming functions of the primary system when a fault is detected in the primary system).

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Ronstrom fails to explicitly teach wherein said second information processing system generates difference control information for identifying second update data generated in said second information processing system after taking over information and data processing performed by said first information processing system when said first information processing system stops operating, and after resumption of operation said first information processing system, said second update data is selectively copied to said first information processing system on the basis of said difference control information. However, Mutalik teaches a backup server backing up a main mass storage system, and then restoring the mass storage system if a malfunction occurs on the mass storage system, for the purpose of restoring a malfunctioned storage system (column 3 lines 15-35, column 4 lines 5-10 & 30-60, column 5 lines 4-20).

It would have been obvious for one of ordinary skill in the art to modify Ronstrom wherein said second information processing system generates difference control information for identifying second update data generated in said second information processing system after taking over information and data processing performed by said first information processing system when said first information processing system stops operating, and after resumption of operation said first information processing system, said second update data is selectively copied to said first information processing system on the basis of said difference control information as per the teachings of Mutalik for the purpose of restoring a malfunctioned primary system.

Ronstrom fails to explicitly teach wherein the respective method and system include asynchronously copying first update data generated in said first information processing system to said second information processing system. However, Yanai teaches a data backup system with different ways of data transfer such as asynchronously copying first update data generated in said

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first information processing system to said second information processing system (column 3 lines 1-10).

It would have been obvious for one of ordinary skill in the art to modify Ronstrom by asynchronously copying first update data generated in said first information processing system to said second information processing system as per the teachings of Yanai since this is one of the known ways of transferring backup data.

11. In reference to claims 4,6,12 and 14, Ronstrom teaches a data duplicating method and system according to claims 1 and 9 respectively, wherein said difference control information is a bit map that indicates the presence or absence of completion of data duplication of said first and second update data at a plurality of individual units of data storage in each of said first and second storage devices (column 3 lines 15-35, column 4 lines 5-10 & 30-60, column 5 lines 4-20).

12. In reference to claims 7 and 15, Ronstrom teaches a data duplicating method and system respectively that connects a first information processing system comprised of a first host computer and a first storage device and at least one second information processing system comprised of a second host computer and a second storage device through a data transfer path and holds the same data in duplicate in said first and second information processing systems by copying first update data generated in said first information processing system to said second information processing system (column 2 lines 25-40 & 50-65, column 4 lines 4-11 & 35-41, column 10 lines 30-47, column 11 lines 22-50, Ronstrom teaches a primary and a backup system that are synchronized with update data),

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the second information processing system generating second update data after taking over information and data processing performed by said first information processing system when said first information processing system stops operating (column 2 lines 25-40 & 50-65, column 4 lines 4-11 & 35-41, column 10 lines 30-47, column 11 lines 22-50, Ronstrom teaches the backup system assuming functions of the primary system when a fault is detected in the primary system).

Ronstrom fails to explicitly teach wherein said second information processing system generates difference control information for identifying second update data generated in said second information processing system after taking over information and data processing performed by said first information processing system when said first information processing system stops operating, and after resumption of operation said first information processing system, said second update data is selectively copied to said first information processing system on the basis of said difference control information. However, Mutalik teaches a backup server backing up a main mass storage system, and then restoring the mass storage system if a malfunction occurs on the mass storage system, for the purpose of restoring a malfunctioned storage system (column 3 lines 15-35, column 4 lines 5-10 & 30-60, column 5 lines 4-20).

It would have been obvious for one of ordinary skill in the art to modify Ronstrom wherein said second information processing system generates difference control information for identifying second update data generated in said second information processing system after taking over information and data processing performed by said first information processing system when said first information processing system stops operating, and after resumption of operation said first information processing system, said second update data is selectively copied

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to said first information processing system on the basis of said difference control information as per the teachings of Mutalik for the purpose of restoring a malfunctioned primary system.

Ronstrom fails to explicitly teach wherein the respective method and system include synchronously copying first update data generated in said first information processing system to said second information processing system. However, Yanai teaches a data backup system with different ways of data transfer such as synchronously copying first update data generated in said first information processing system to said second information processing system (column 3 lines 1-10).

It would have been obvious for one of ordinary skill in the art to modify Ronstrom by synchronously copying first update data generated in said first information processing system to said second information processing system as per the teachings of Yanai since this is one of the known ways of transferring backup data.

13. In reference to claims 8 and 16, Ronstrom teaches a data duplicating method and system according to claims 1 and 9 respectively, wherein said difference control information is a bit map that indicates the presence or absence of completion of data duplication of said first and second update data at a plurality of individual units of data storage in each of said first and second storage devices (column 5 lines 43-67 and column 7 lines 1-45).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent No. US006260124B1, Crockett et al teaches resynchronizing backup data.

Patent No. US006523130B1, Hickman et al teaches a storage system with error detection and recovery.

Patent No. US006292905B1, Wallach et al teaches fault tolerant networking with a primary and secondary servers with replicated database.


Patent No. US006237111B1, Gambino teaches resynchronizing message traffic in a network following a network component failure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramy M. Osman whose telephone number is (571) 272-4008. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RMO
March 19, 2006


ARIO ETIENNE
PRIMARY EXAMINER